

**WASHINGTON DEPARTMENT OF ECOLOGY**  
**ENVIRONMENTAL ASSESSMENT PROGRAM**  
**FRESHWATER MONITORING UNIT**  
**STREAM DISCHARGE TECHNICAL NOTES**

**STATION ID:** 45F070  
**STATION NAME:** Peshastin Creek at Green Bridge Road  
**WATER YEAR:** 2006  
**AUTHOR:** Tyler W. Burks

**Introduction**

Watershed Description

Peshastin Creek originates in the snowfields of the eastern slopes of the central Cascade Mountain range and flows into the Wenatchee River at river mile 17. The watershed is bounded by both the Stuart Range (Mount Stuart: 9,415 ft) and the Wenatchee Mountains. Land cover above the gage consists of predominantly coniferous forest but also includes alpine shrubland, montane grassland, bedrock/talus slopes, and riparian woodlands. A large portion of the lower watershed is used for agricultural production (tree fruit). Mean annual precipitation across the watershed above this gage location is 36 inches (U.S. Weather Bureau, 1965).

Gage Location

The telemetered stream gaging station on at Peshastin Creek at Green Bridge Road was installed on September 20, 2002. The gage is located at the Green Bridge Road bridge on the right bank, approximately 1.4 miles upstream of the mouth.

Table 1.

Drainage Area (square miles)	134 (USGS, 2013)
Latitude (degrees, minutes, seconds)	47°33'09" N
Longitude (degrees, minutes, seconds)	120°36'13" W

## Discharge

Table 2. Discharge Statistics.

Mean Annual Discharge (cfs)	196
Median Annual Discharge (cfs)	93
Maximum Daily Mean Discharge (cfs)	2110
Minimum Daily Mean Discharge (cfs)	6.2
Maximum Instantaneous Discharge (cfs)	2440
Minimum Instantaneous Discharge (cfs)	5.6
Discharge Equaled or Exceeded 10 % of Recorded Time (cfs)	474
Discharge Equaled or Exceeded 90 % of Recorded Time (cfs)	12
Number of Days Discharge is Greater Than Range of Ratings	0
Number of Days Discharge is Less Than Range of Ratings	24

Note: Statistics displayed in Table 2 may not include values in which the predicted discharge exceeds the range of ratings.

## Narrative

Four discharge measurements were taken, ranging from 10 to 446 cfs. Snowmelt runoff began during the latter half of March, due to seasonal warming. Discharge reached its peak on May 17, 2006. The minimum discharge was recorded during baseflow conditions on September 9, 2006. Discharge was influenced by upstream seasonal irrigation operations, most notably during the month of September.

## Error Analysis

Table 3. Error Analysis Summary.

Logger Drift Error (% of discharge)	---
Weighted Rating Error (% of discharge)	9.7%
Total Potential Error (% of discharge)	---

## Rating Table(s)

Table 4. Rating Table Summary

Rating Table No.	#4	#5	
Period of Ratings	10/1/2004-5/17/2006	5/10/2006-9/30/2006	
Range of Ratings (cfs)	0.54-2870	5.15-5950	
No. of Defining Measurements	9	9	
Rating Error (%)	8.2%	12.1%	

Rating Table No.			
Period of Ratings			
Range of Ratings (cfs)			
No. of Defining Measurements			
Rating Error (%)			

Rating Table No.			
Period of Ratings			
Range of Ratings (cfs)			
No. of Defining Measurements			
Rating Error (%)			

## Narrative

The water year began with Table #4 carrying over from the previous water year. During a brief period leading to the peak discharge of the water year, the intensity of snowmelt runoff increased. As a result, the control became scoured. Table #4 was phased into table #5 across this period. Table #5 was valid for the remainder of the water year.

## Stage Record

Table 5. Stage Record Summary

Minimum Recorded Stage (feet)	0.63
Maximum Recorded Stage (feet)	4.23
Range of Recorded Stage (feet)	3.60
Number of Un-Reported Days	22
Number of Days Qualified as Estimates	228
Number of Days Qualified as Unreliable Estimates	0

## Narrative

Unreported days were due to an ice-impacted channel. The stage record is considered an estimate for 228 days during the water year. The first 26 days were considered a questionable estimate, while the remaining 202 days are considered a reliable estimate. The staff gage was reported damaged on January 19, 2006. Efforts to back-calculate staff observations from historical R.P. observations yielded poor results. Due to relative stability of the data logger, the original unadjusted data was used but was considered a reliable estimate. The period of questionable stage data occurred after a known ice period, prior to the first ice-free visit.

## Modeled Discharge

Table 6. Model Summary

Model Type (Slope conveyance, other, none)	---
Range of Modeled Stage (feet)	---
Range of Modeled Discharge (cfs)	---
Valid Period for Model	---
Model Confidence	---

## Surveys

Table 7. Survey Type and Date (station, cross section, longitudinal)

Type	Date
N/A	N/A

## Activities Completed

The staff gage was damaged during the winter months, due to high flow. It was replaced without a survey at the beginning of August.